

Microbial Biology (B): Biology of Plant-Microbe Associations Program

National Program Leader: Ann Lichens-Park

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Program Goals

- To improve resistance to certain plant diseases
- Develop novel mechanisms of manipulating plant-associated microbes by interfering with microbial cell-to-cell signaling
- Improved understanding of pathogen survival & spread

Program Priorities

- Molecular mechanisms of disease or resistance interactions between microbial pathogens and host plants
 - note: Proposals that focus on plant genes without significant focus on microbe are not appropriate for this program.
- Molecular mechanisms of microbial communication with other microbes and with non-microbial organisms
- Mechanisms by which plant pathogens spread over short distances

Microbial Biology (B): Biology of Plant-Microbe Associations Program

Program Changes for FY 2007

- Applications must address plant-microbe associations using
 - 1) economically important plants and/or microbes
 - 2) plants and/or microorganisms that are important to agricultural sustainability
- Program Description must clearly justify system studied in terms of economic or societal benefit
- Model systems may be used only if knowledge gained is applied to systems of economic or societal importance **within the submitted project**

Microbial Biology (B): Biology of Plant-Microbe Associations Program

Program Statistics – FY 2006

- # of Proposals Submitted: 118
- # of Proposals Awarded: 20
- % Success: 17% overall; 14% standard proposals
- Average Award Size: \$343,473 (not including conferences, equipment, seed, research career enhancement or postdoc)
- Average Award Duration: 33 months for Standard Awards

Microbial Genomics (B): Functional Genomics of Microorganisms

National Program Leader: Ann Lichens-Park

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Program Goals

- Increase ability to manipulate microbes for benefit of U.S. agriculture, based on improved understanding of microbes
- Faster, more accurate and cost-effective detection and diagnosis of plant and animal pathogens
- Improved methods of managing plant and animal pathogens

Program Priorities

- Characterization of microbial mechanisms of pathogenicity
- Characterization of mechanisms of non-pathogenic interactions between microbes or between microbes and their hosts
- Characterization of mechanisms used by microbes to survive or respond to environmental change

Microbial Genomics (B): Functional Genomics of Microorganisms

- Applications must characterize on a large scale genes or networks of genes in a microbe having a **completely or nearly completely sequenced genome**.
- Microbe must be of importance to U.S. agriculture
- Projects are expected to utilize current and emerging **high-throughput technologies**
- Anticipated Program budget for FY 07 is \$6 million

Microbial Genomics (B): Functional Genomics of Microorganisms Program Statistics – FY 2005

- # of Proposals Submitted: 25 Standard
- # of Proposals Awarded: 5
- % Success: 20
- Average Standard Award Size: \$725,000
- Average Award Duration (months): 34

NSF/CSREES Interagency

Microbial Genome Sequencing Program

National Program Leaders: Ann Lichens-Park: apark@csrees.usda.gov

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FY 06 Program Goals

- High-throughput sequencing of the genomes of viruses, bacteria, archaea, fungi, oomycetes, protists and agriculturally important nematodes
- Development and implementation of strategies, tools and technologies to make currently available genome sequences more valuable to the user community

FY 06 Program Priorities

Microbes must be:

- of fundamental biological interest
- of national interest (e.g. homeland security)
- important to the productivity and sustainability of agriculture and forestry
- important to the safety and quality of nation's food supply

NSF/CSREES Interagency Microbial Genome Sequencing Program Program Statistics – FY 2006

- # of Proposals Submitted: 75 Standard
- # of Proposals Awarded: 23 Standard
(7 CSREES, 15 NSF, and 1 both NSF & CSREES)
- % Success: 31%
- Average CSREES Award Size: \$625,000
- Average CSREES Award Duration (months): 27

NSF/CSREES Interagency Program Microbial Observatories (MO) and Microbial Interactions and Processes (MIP)

National Program Leader / Program Director:

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Goals / Priorities – (Due date 10/08/07)

See: www.nsf.gov, NSF 05-0600 for RFA
(CSREES will only support MO projects)

- 1) Discovery of undescribed microbes and microbial consortia in diverse habitats
- 2) Characterization of novel biochemical, metabolic, physiological, genomic, and other properties and processes in these consortia and communities

No Significant Changes for FY07

Proposals might address, *but are not limited to*:

- Properties and mechanisms responsible for microbial growth, adaptation and survival in natural and managed environments;
- Mechanistic basis of interactions among microbes;
- Microbial processes for flow of energy and cycling of nutrients in different environments;
- Studies that characterize the microbial diversity and composition of microbial communities associated with healthy and diseased hosts or different management systems;
- Patterns of microbial distribution in time and space

Genomics, functional genomics and proteomics approaches to these studies are encouraged.

USDA-CSREES relevant awards: \$2 million

Funding Stats. and Proposal Process

(FY06 was 1st yr. for CSREES partnership)

- All proposals are submitted to NSF (FY06, n=74)
- All MO proposals reviewed by one panel. MIP proposals are a separate panel. MO success rate approx. 10%.
- Highly ranked proposals relevant to CSREES mission are supported by CSREES alone or w/ NSF. If awarded, PI submits proposal with CSREES forms for processing.

1. CSREES duration limited to 4 years.

2. Abstracts of two awardees for FY06

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Insert 23.3 in "Grant No." field

(23.3 is the Prog. Code for the MO Prog. at USDA-CSREES)